

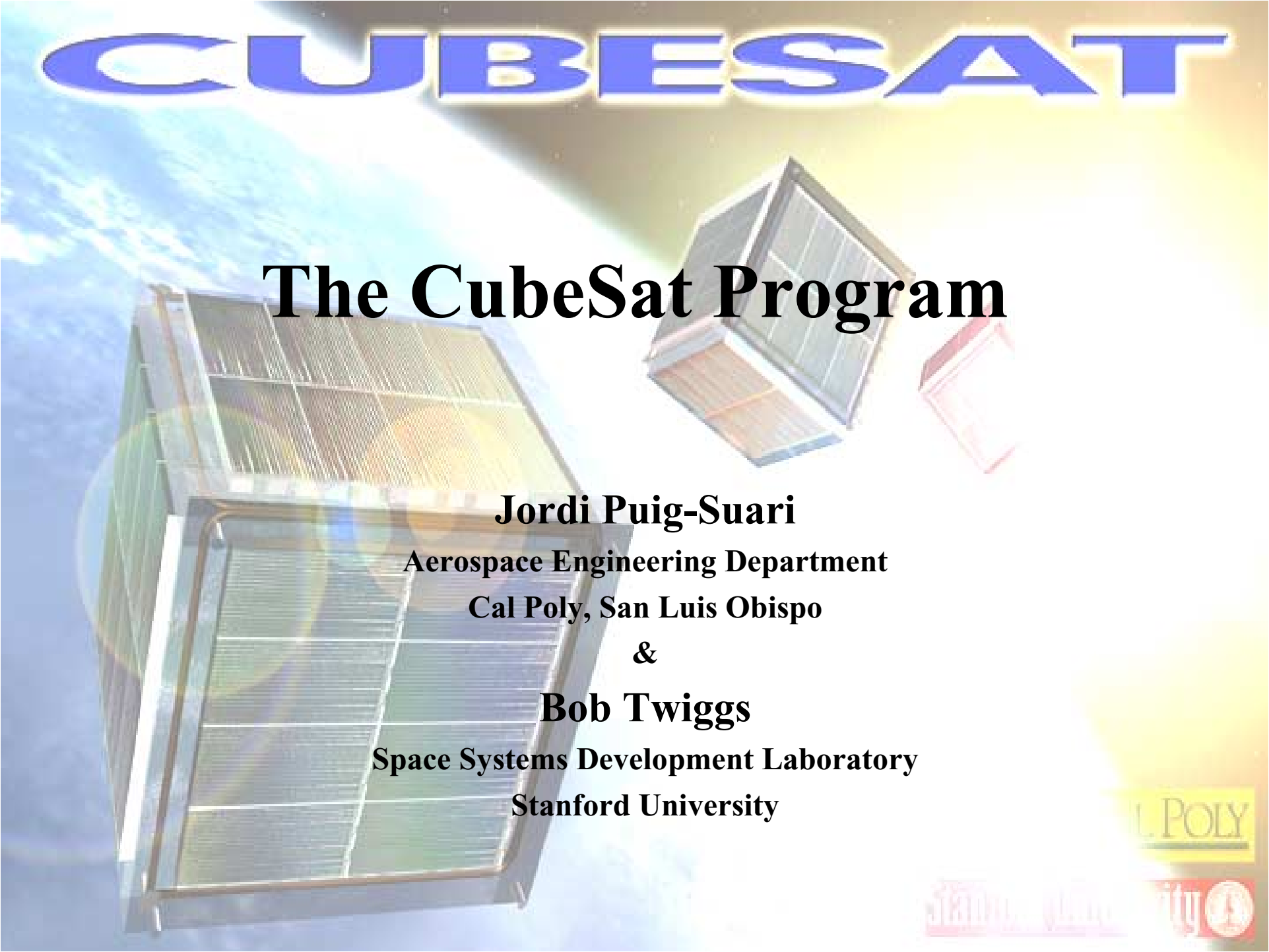
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The CubeSat Program

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CubeSat Program Objectives

✧ Facilitate Access to Space:

- ◆ Rapid Development Time
- ◆ Low-Cost
- ◆ Launch Vehicle Flexibility

✧ University Projects

✧ Industry Testbed

CubeSat Concept

✧ PicoSatellite (Small):

- ◆ 10cm cube, 1kg
- ◆ Affordable Launch Cost (\$30-40K)

✧ Standard Satellite Specifications

✧ Large Developer Community

✧ Standard Deployer

- ◆ Based on Stanford's Opal System
- ◆ Compatible with many Launch vehicles

CalPoly / Stanford Role

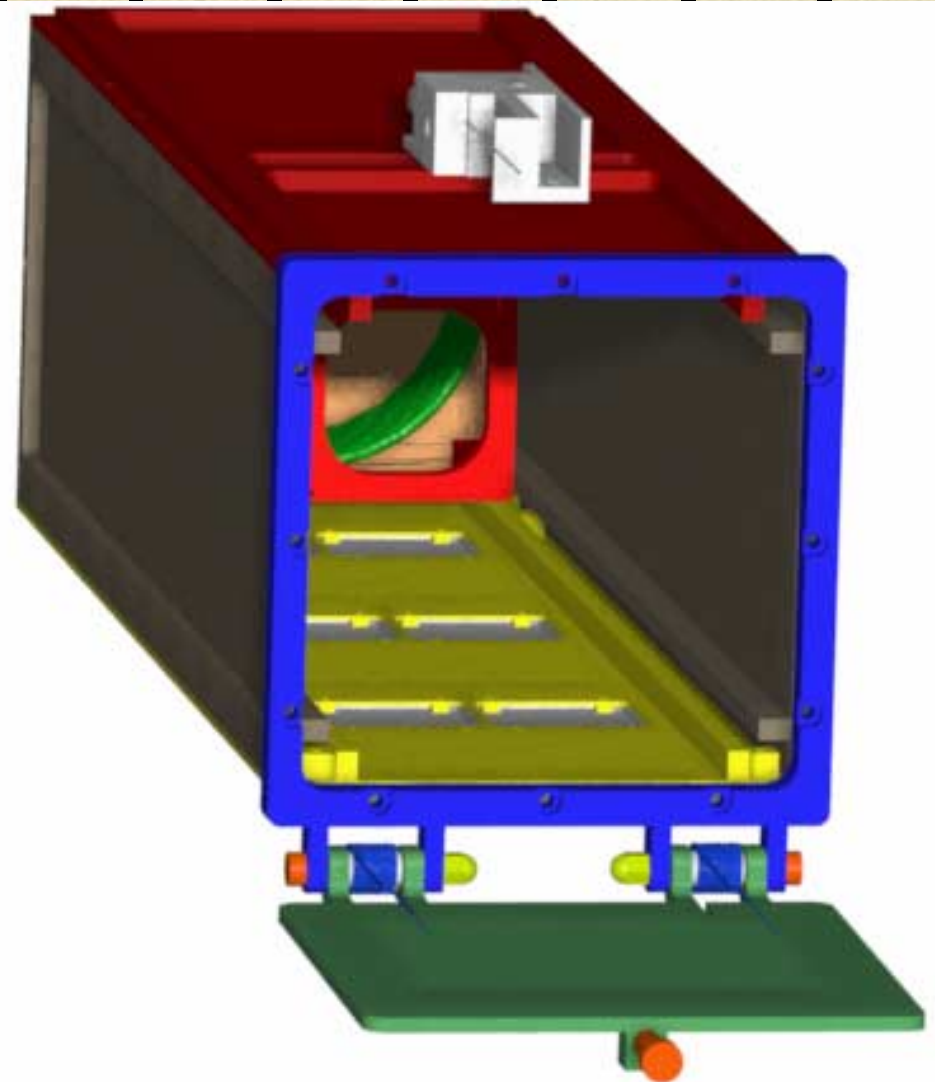
- ✦ Develop Standard Deployer
- ✦ Develop/Maintain Requirements for CubeSat
- ✦ Coordinate/Facilitate Developers Efforts
- ✦ Final Integration/Testing of CubeSats with Deployer and Launch Vehicle
- ✦ Interface with Launch Provider

Deployment System Objectives

- ✱ Ensure Proper CubeSat Deployment:
 - ◆ Minimize Spin and Chance of Collision
- ✱ Protect Primary payload and launch vehicle from CubeSat interference:
 - ◆ Electrical, mechanical & electromagnetic
- ✱ Drive CubeSat standard

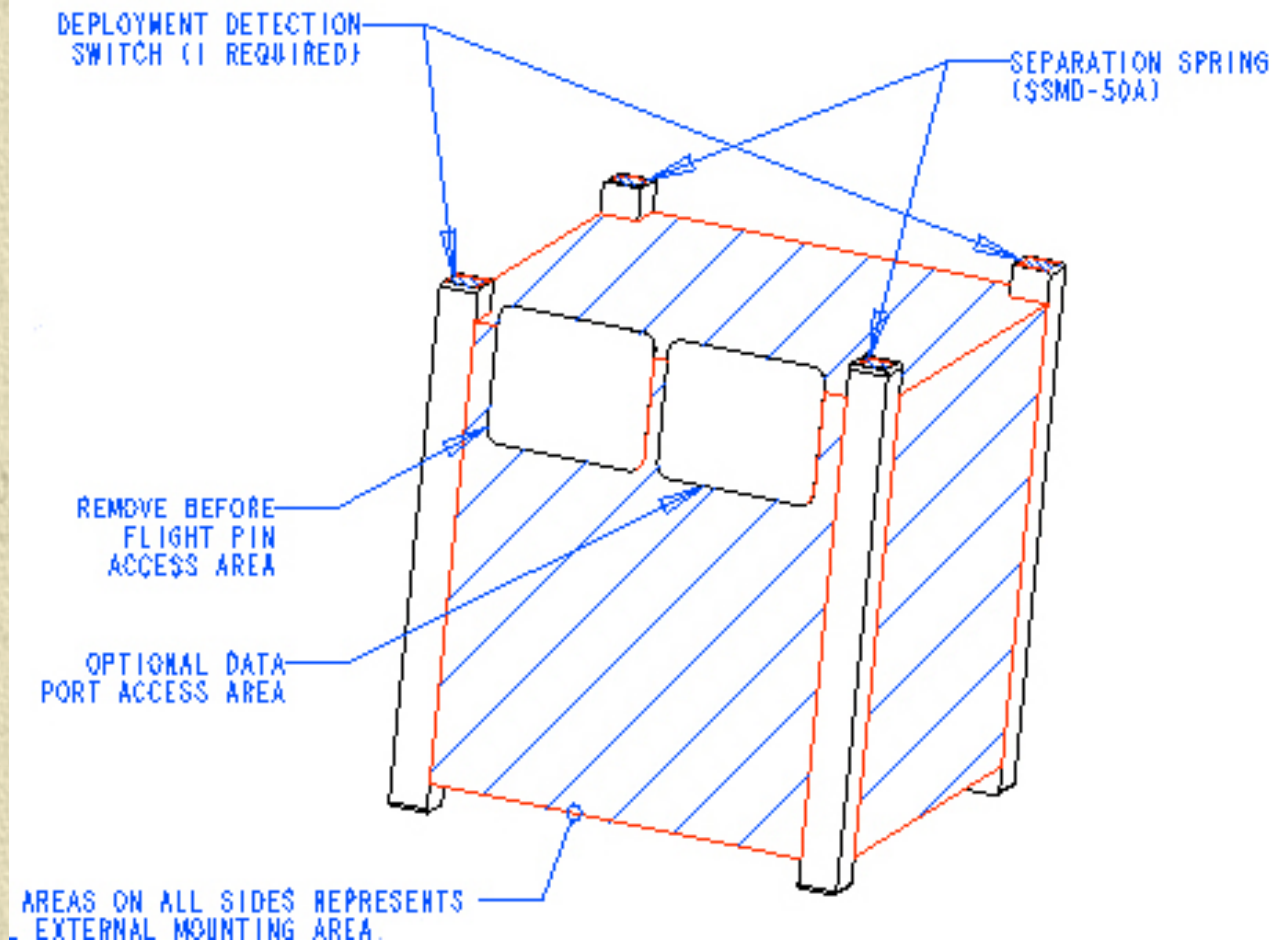
P-POD (Poly-Picosat Orbital Deployer)

- ✧ 3 or 6 CubeSats
- ✧ ~ 0.67 Kg per CubeSat
- ✧ Line Cutter
- ✧ Spring Deployed
- ✧ Railings
- ✧ Interface Port
- ✧ CubeSat Standard Fixed
 ◆ Planners Guide (Rev. V)
- ✧ Test POD



CubeSat Standard

✧ Simple Design Specifications Document

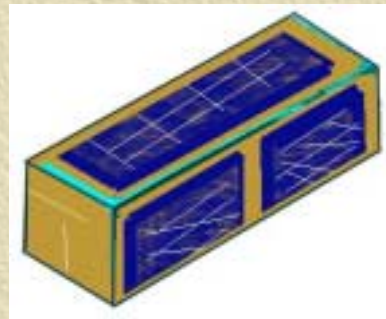
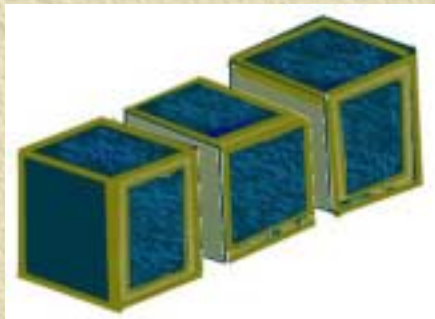


Variations on the Standard

✱ Double Cube: 10x10x20 cm 2.0 kg

✱ Triple Cube: 10x10x30 cm 3.0 kg

✱ 6 Pack: 10x20x30 cm 6.0 kg



✱ Proposed Configurations Do Not Change
Launch Vehicle Interfaces

✱ Minimum Changes to P-POD

Current Activity

✧ U.S. Developers

- ✧ UC Santa Barbara/JPL, Montana State, Arizona, Illinois, CalPoly, Taylor, Stanford/Lockheed Martin, Cornell, Hawaii, 2 High Schools

✧ International Developers

- ✧ Canada, Japan, Taiwan, Denmark

✧ First Launch Early 2003

✧ Seeking Launch Opportunities

- ✧ Russia: Dneper, Eurokot
- ✧ U.S.???: Pegasus, Delta II, SeaLaunch, Shuttle

Final Thoughts

- ✧ Program is Gaining Momentum
- ✧ Developing PicoSatellites Role in Space
- ✧ Generating New Satellite Developers
- ✧ Reduced Need for Free Launches
- ✧ U.S. Launch Opportunities are Difficult